intramuscular route. The writer prefers to give it intramuscularly and uses the dose of the following preparations: One cc. Burrough, Wellcomb & Co., or two cc. of Parke, Davis & Co. preparation, sterilized in ampules ready for hypodermic use. There were no unpleasant after effects except painful contractions of the uterus, but by combining with scopalamin 0.0004 gm. or morphine 0.01 this can be overcome.

L. I. BREITSTEIN.

BRILL'S SYMPTOM COMPLEX AND TYPHUS FEVER.

During a number of years Brill of New York has made a series of communications pertaining to an infectious disease of unknown origin and pathology, characterized by a short incubation period, (4-5 days), a period of continuous fever accompanied by intense headache, apathy and prostration, diffuse and extensive erythema and maculo-papular eruption; all of about two weeks duration. Whereupon the fever abruptly ceases either by crisis within a few hours, or by rapid lysis within three days, and all clinical symptoms disappear.

Last year he published a clinical study based upon 221 cases which he had observed during the past 14 years in the wards of the Mount Sinai hospital. These cases were taken by a number of New York physicians, for typhoid fever. But the failure of agglutinative reactions with the typhoid and allied organisms, as well as the failure to recover the organism in all cases from the circulating blood, distinctly showed the disease, in spite of its clinical resemblance to typhoid, to be etiologically, of a different nature.

The differentiation of Brill's symptom-complex from typhus fever, the resemblance to which Brill admits, has given rise to considerable discussion. He says, "I should have felt that I had offered nothing to our nosology if it had not been proved that typhus fever had lost its virulence, that it was constantly present in a community, that it was not communicable, that when it was present epidemics of it did not occur, and that it was no longer a grave and fatal disease. But," he adds, "with typhus fever as the great masters of medicine have taught and I have seen it, such a conception would be unjustifiable; therefore, I believe this disease not to be typhus fever."

More recently Friedman, (Archives of Internal Medicine, Oct., 1911), has again called our attention to the clinical characteristics of this disease, and from an analytical study, and comparison of them with the symptoms of mild typhus, he has reached the conclusion that Brill's disease is to be identified with typhus fever. In the absence of a bacteriological criterion it is obviously difficult to reach any definite conclusion, but further study of this symptom-complex is most necessary. For, if this condition should be definitely identified as typhus fever, a good many of our ideas and teachings regarding typhus would have to be considerably modified.

A. J. L.

MYOCARDIAL DEGENERATION.

Among a number of recent valuable articles on the subject of heart-disease none is more fundamental in nature or elucidative in character than the contribution of Drs. Leo Loeb and Moyer S. Fleisher to the recent meeting of the A. M. A. These well-known experimenters, using the rabbit as a subject, induced an acute strain of the heart muscle by the intravenous injection of epinephrin and then followed the subsequent histological changes in that organ. They say: "Shortly after the injection slight interstitial oedema was found in the heart, and somewhat later the muscle fibers showed slight increase in size. Several days after the injection, the muscle fibres were distinctly increased in size and their nuclei were also larger; the connective tissue between the muscle fibres was also increased in quantity. In the next few days the changes became more pronounced. The separation of the muscle fibres due to oedema was now marked. In places we found degenerative changes in the muscle fibres; some of the fibres appear to have been dissolved, only a thin ring of muscle substance surrounding the nucleus; the striations were now indistinct in the fibres. About two weeks after the injection the changes had reached their maximum. The connective tissue increase was diffuse. The degenerative changes in the muscle proper had become more extensive. Besides a larger number of the muscle fibres and their nuclei were increased in size, and frequently double nuclei were seen in the muscle cells. From this period onward the changes became less marked, both macroscopically and microscopically. The hypertrophy of the muscle fibres and the muscle nuclei gradually disappeared; the degenerative changes were no longer apparent. Finally, twenty weeks after the injection, small islands of fibrous tissue which had supplanted the degenerative muscle fibres were the only remaining evidence of the hypertrophy of the heart and the myocarditis." The experimenters analyze the possible source of the changes and exclude for seemingly good reasons both myocardial anæmia due to contraction of the coronaries and direct toxic action of the epinephrin on the heart muscle. As we understand them, they hold that increased cardiac work (result of vasoconstriction produced by the epinephrin) results in surcharging the muscle cells with molecules the result of katabolic cleavage; these raise the osmotic tension and water is rapidly absorbed leading to cellular oedema and degeneration. The insult to the tissue stimulates the resident fibroblasts and when at a later period the disturbance subsides this secondary action results in a residual replacement fibrosis. It is worth noting that this primary oedema, the supposed cause of the later changes, could be equally, perhaps more happily explained by Martin Fischer's theory. The metabolites of excessive muscular activity are acid, and this acid acting on colloids of the cells in which it was generated would induce absorption of water and oedema. Fischer has clearly shown that the attractive force of acid colloid for water is much greater than that produced by variations of osmotic pressure. Be this as it may, the important fact re-